



**Department of Commerce**  
Innovation is in our nature.



# Aerospace in Washington State

**Impact Washington**  
**NIST-MEP Affiliate**

**CHOOSE**  **Washington**  
STATE



# Washington Aerospace Fast Facts



- Near 100-year legacy
- Over 1,350 companies
- 132,500+ in aerospace related employment
- 94,200 employed in aerospace manufacturing
- 19% of all U.S. aerospace workers are in Washington State
- Ports equidistant to European and Asian markets, ideal for exporting products

# Washington State Aerospace Importance

## WASHINGTON AEROSPACE

**\$76B** DIRECT, INDIRECT, & INDUCED  
IMPACT SALES, 2012

### BOEING COMMERCIAL

 **\$476M** IN STATE  
TAX REVENUES

REVENUE TO THE STATE ECONOMY = **\$70B**  
(11% OF STATEWIDE GROSS BUSINESS INCOMES)

### #WAAero INDUSTRY | \$4 BILLION IN STATE REVENUE SINCE 2004

**135,500**

JOBS

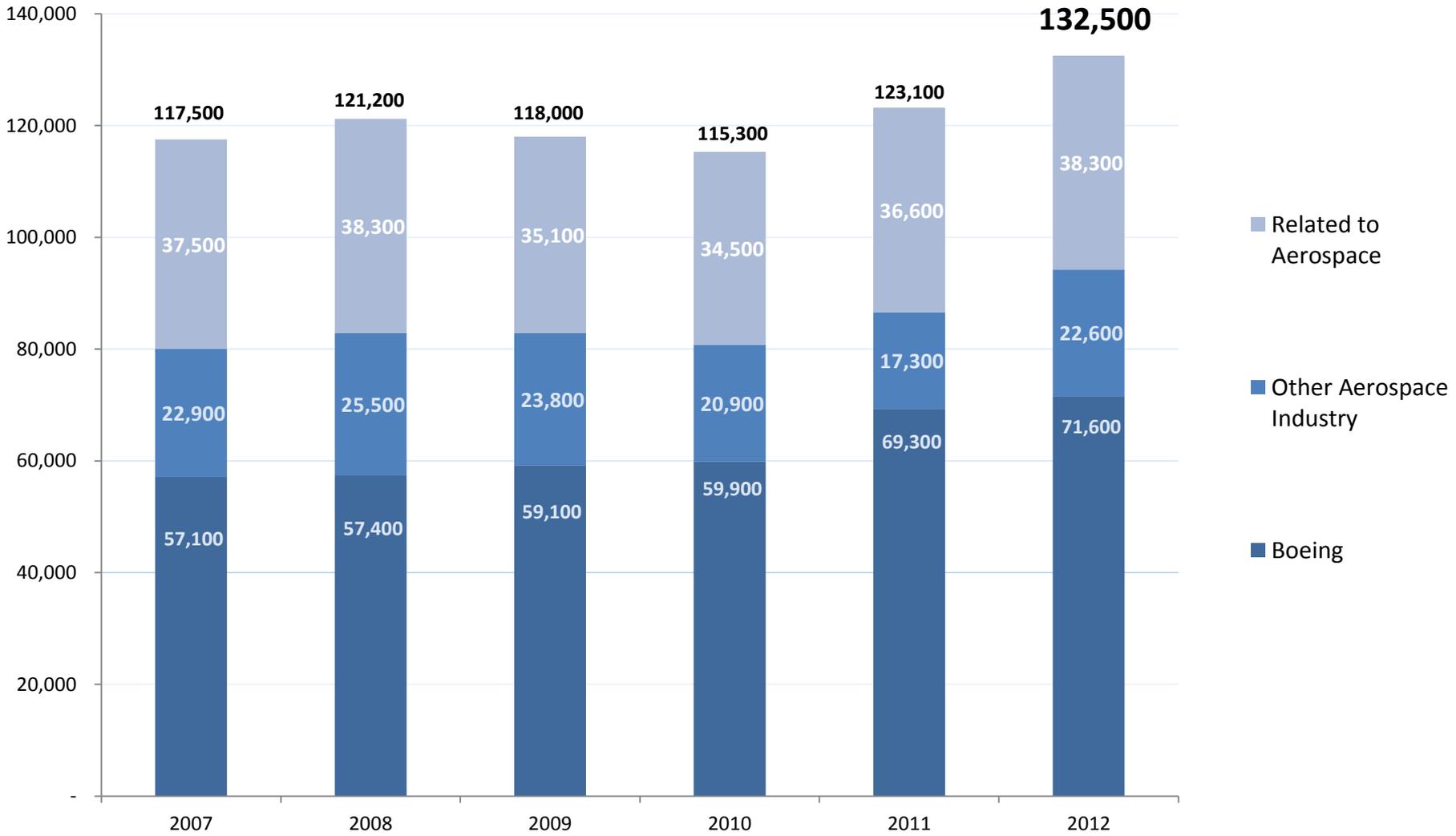


**\$11.5B**

WAGES FOR THE INDUSTRY\*  
(11% OF ALL WAGES EARNED STATEWIDE)

AT 1,350 ESTABLISHMENTS  
ACROSS THE STATE

# Washington State Aerospace Industry Employment



# A Unique Moment in Time



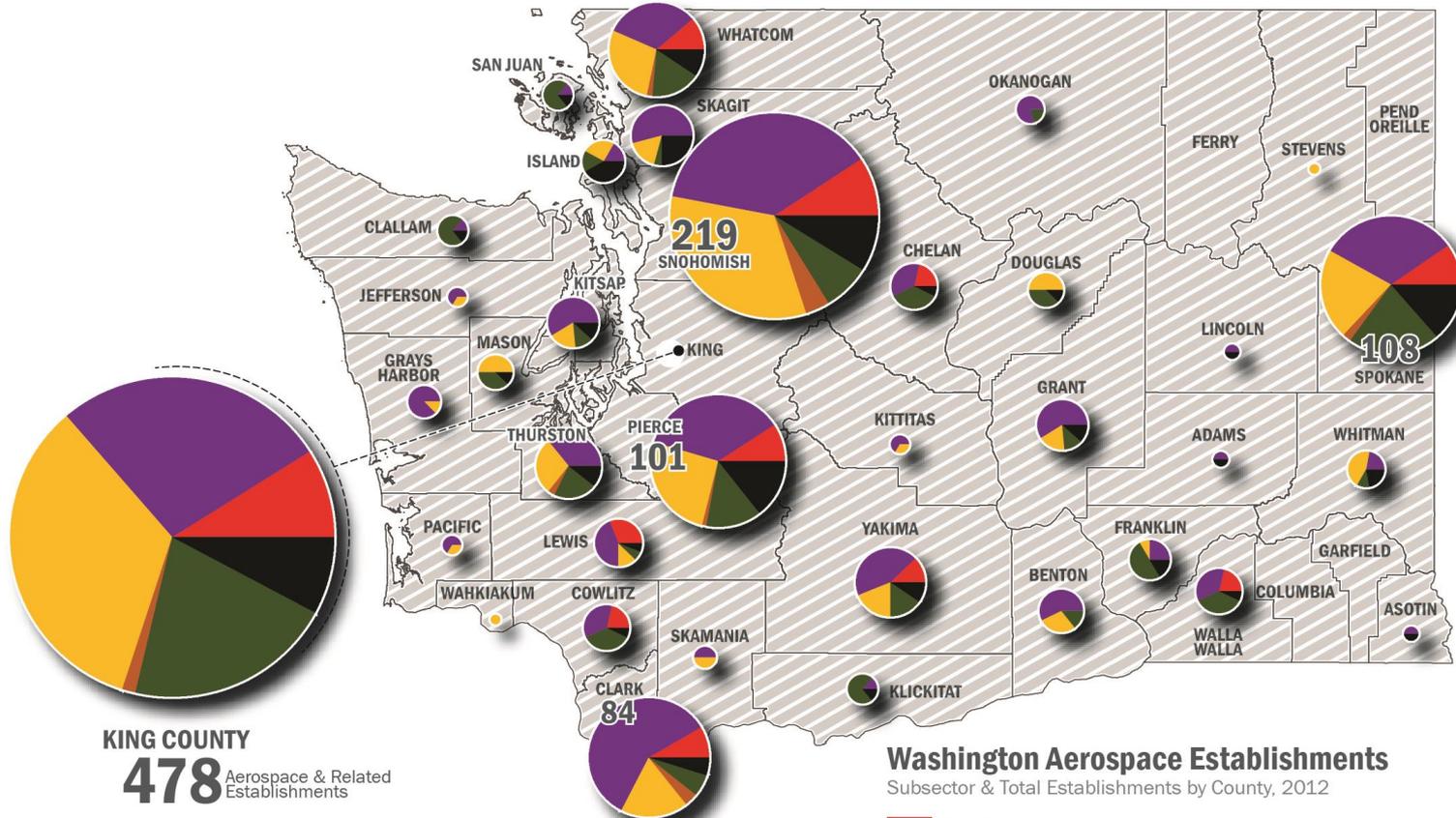
- Approaching Boeing's centennial in 2016
- Demand for 35,280 new airplanes (\$4.84 trillion) by 2032
- Unprecedented production increases across all Boeing assembly lines
- New programs (737MAX, 787-10, 777X)
- Re-constitution of local commercial supply chain
- Emerging subsectors (UAS, Aviation Biofuels, Space)

# Washington's Aerospace Innovation Cluster

*A large and diverse supply chain has organically developed across the state over the past 90 years.*

- More than 1,350 companies make up the aerospace cluster.
- Broad range of capabilities in several main sub-sectors:
  - Airframing
  - Engineering
  - Composites
  - Aircraft interiors
  - Avionics
  - Tooling
  - UAS

# Washington's Aerospace Clusters



**KING COUNTY**  
**478** Aerospace & Related Establishments

**WASHINGTON STATE AEROSPACE AND RELATED ESTABLISHMENTS, STATEWIDE:**

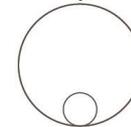
**1,350**

## Washington Aerospace Establishments

Subsector & Total Establishments by County, 2012

- Materials
- Machining
- Manufacturing
- Testing & Calibration
- Air Transportation
- Maintenance, Repair & Overhaul

Circle size proportional to total number of County establishments



100 Miles

Sources: Revel; Community Attributes, Inc., U.S. Bureau of Labor Statistics

# Washington's Aerospace Clusters



- **NIST-MEP Client opportunities**
  - Strategic Business Planning
  - Tactical Operating Planning
  - Valuation
    - CoreValue Assessment
      - Business value in \$
      - Business value gap in \$
      - Plan to cure gap
    - Succession Planning
      - Family businesses

# Washington's Aerospace Clusters



- **NIST-MEP Client Opportunities**
  - Topline/Revenue
    - Growth/Marketing/Sales
    - Innovation
  - Bottomline/EBITDA
    - Lean/Continuous Improvement
    - Supply Chain
    - Automation
  - Delivery issues
    - ERP/Production Management

# Washington's Aerospace Clusters



- **NIST-MEP Client Opportunities**

- Quality Issues

- Six Sigma quality philosophy

- Supply Chain Issues

- Goals and objectives

- Root cause analysis

- Supply Chain management analysis and tools

- Systemic improvement

# Washington's Aerospace Clusters



- **What business opportunities do we discover?**
  - Businesses that are good but underfunded
  - Businesses looking for exit/succession
  - Clear valuation gaps straightforward solutions
  - Some gaps may be filled with merger or acquisition
  - Supply chain weaknesses
  - Businesses with potential to be best in class

# Washington's Aerospace Clusters

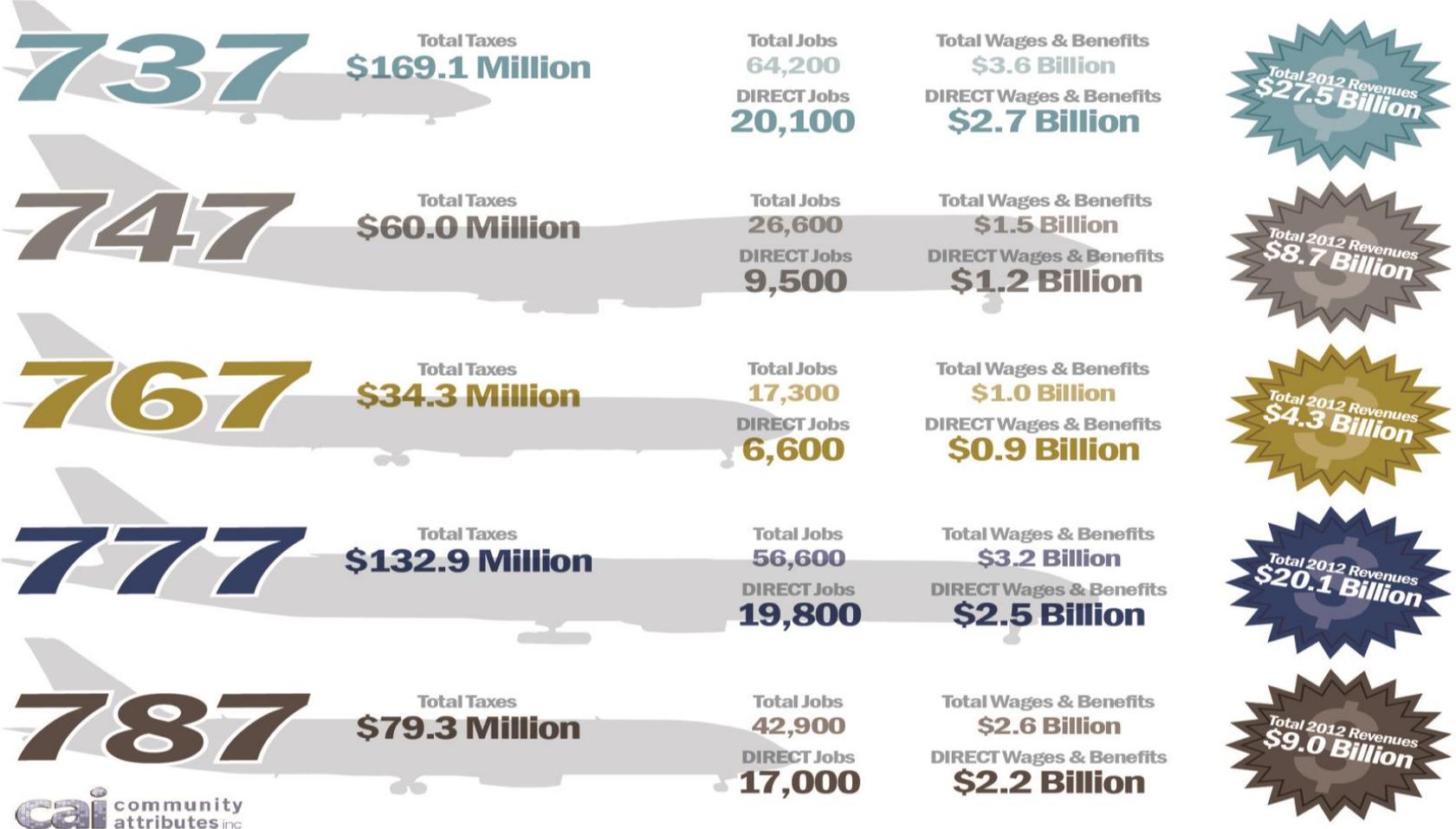


- **What we know and what we can share**
  - Not a brokerage
  - Charter- To help manufacturing grow in our state
  - Aerospace tremendous opportunities
  - MEP has great tools to improve performance
  - Not a typical consulting arrangement
  - Not for Profit -Trusted advisor
  - Do work with Private Equity groups and VC's
  - Can be a connectory

# Washington's Aerospace Cluster: Employment

## FISCAL IMPACTS

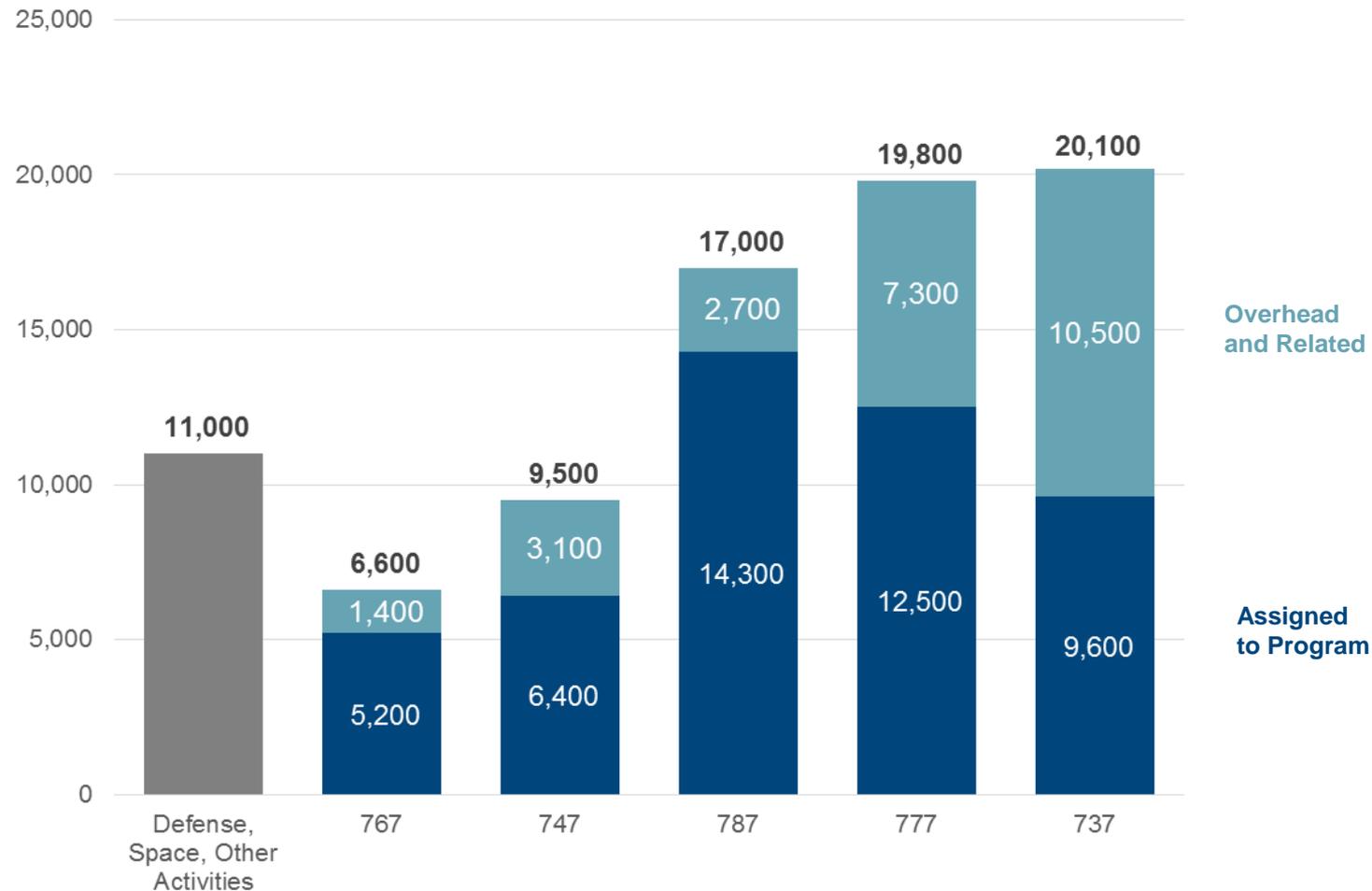
## ECONOMIC IMPACTS



# Washington's Aerospace Cluster: Economic Impacts

## Employment Allocated by Aircraft Family, 2012

Number of workers; total estimated Boeing Employment in Washington



777 production provided **19,800 jobs** in 2012, representing **27%** of Boeing Commercial employment.

# The 777X Opportunity



- 1,100+ 777s built in Everett to date
- New design features larger engines, composite wings, 787-like amenities
- Statewide opportunities for supply chain
- Extension of tax incentives to 2040
- Streamlined permitting
- New training programs in aerospace and advanced materials

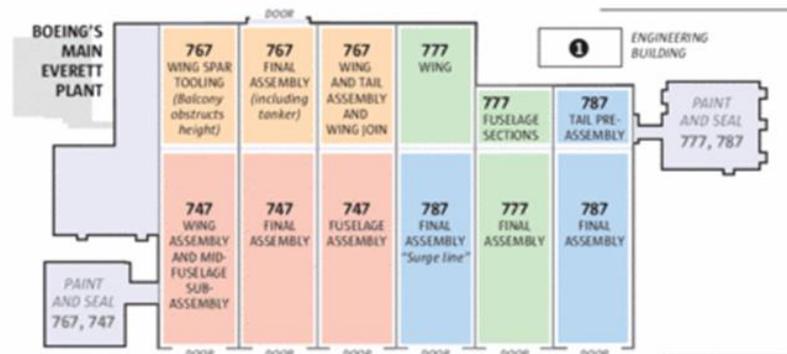
# 777X: Where do we go from here?

- Boeing's new 1.3 million-square-foot 777X wing plant will set the bar for carbon composites technology.
- Facility is the largest single structure being built in Washington in 2015.
- Factory is to be ready for occupancy in 2016, and production will start in 2017.
- Boeing is recruiting supply chain partners:

## Everett options for a 777X wing plant

Boeing will fit the 777X composite wing-fabrication plant into its existing Everett footprint, the company is expected to announce as soon as Tuesday. Possible locations where Boeing could put it:

- 1 Demolish some old buildings north of the 777 assembly body and put a new facility there.
- 2 A large hangar at the south end of Paine Field now used for 787 rework.



Source: Boeing

Reporting by DOMINIC GATES

Graphic by MARK NOWLIN / THE SEATTLE TIMES

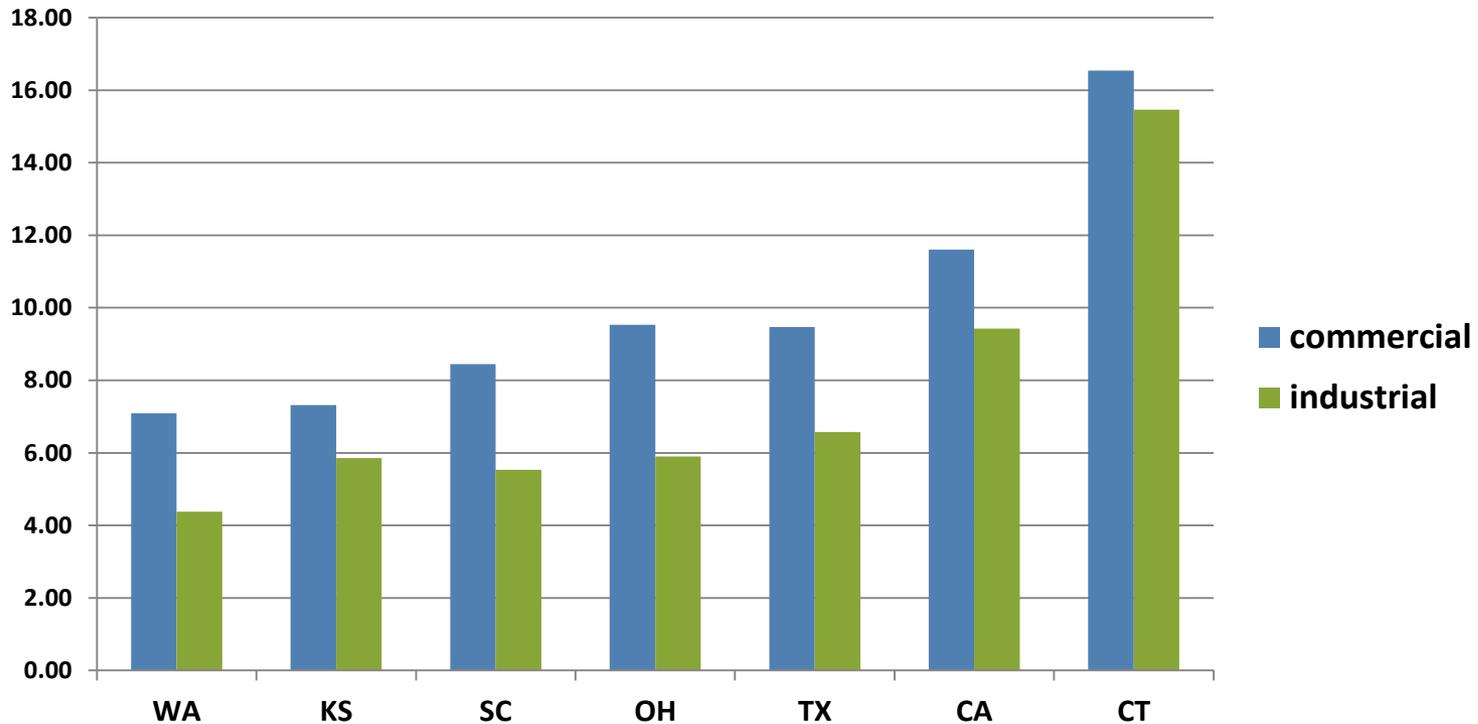


# Washington State's Assets

- **A Growing and Diversified Aerospace Cluster** - allowing existing and new companies to thrive.
- **A Deep and Talented Aerospace Workforce** – made of a robust pipeline of aerospace workers.
- **A Culture of Aerospace Innovation** – encouraging discovery and development of new technologies.
- **An Integrated Supply Chain** - organized across the state to support the industry and ensuring a healthy business climate.

# Choose Washington: Energy Costs

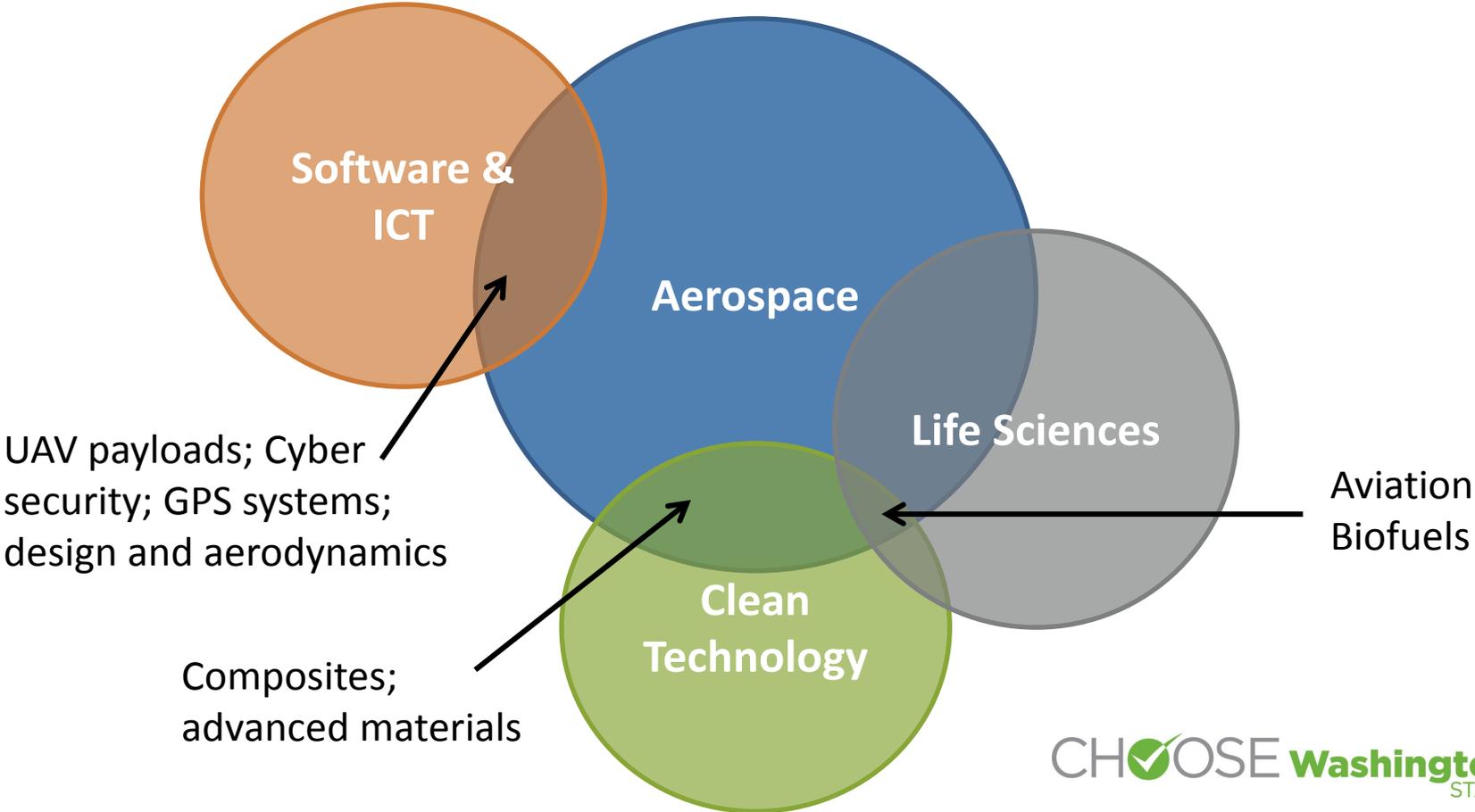
Electricity Rates (cents/kwh)



Source: U.S. Energy Information Administration

# Choose Washington: Cross-sector Synergies

*Collaboration with other industries will drive aerospace growth in the future.*



# Composites

- 100 Advanced Materials Companies in Washington State.
- \$3.3 billion Annual Revenue.
- Aerospace, automotive, wind, maritime sectors.

**SGL**

AUTOMOTIVE CARBON FIBERS

**TORAY**

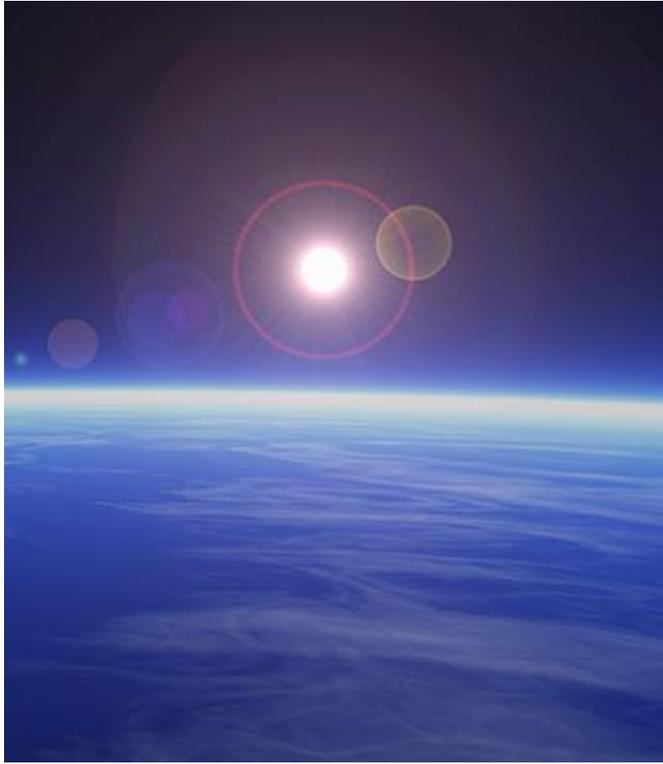


# Aviation Biofuels

- Boeing and Alaska Airlines team up for first commercial flight using biofuels.
- UW and WSU share \$90 million NARA grant to study woody biomass.
- WSU selected to lead FAA Center of Excellence for Alternative Jet Fuels & Environment.



# Space Exploration



- Washington is one of the leading states in space exploration, particularly in propulsion systems for use beyond the Earth's atmosphere.
- Outer space business in Washington is generating about \$150 million in revenue and is growing. It employs about 1,000 people.



# Unmanned Systems



- Long history as a leader in aircraft and unmanned aerial vehicle design and manufacturing.
- Washington State ranks 2<sup>nd</sup> of states with high potential for economic growth.
- Strong clustering of companies along the Columbia River Gorge.
- WSU develops an hydrogen powered UAS.



# Choose Washington: Government Support



- The Governor has made strengthening the aerospace sector in Washington a priority.
- The Washington State Department of Commerce's team of experts will help you effectively locate a business in Washington, find new partners, research and enter new markets, export your products, guide you through permitting and coordinate workforce training.
- The Washington Aerospace Partnership focuses on workforce training, R&D and economic development to:
  1. Improve coordination of the state's aerospace training, education, research and development.
  2. Provide policy advice to strengthen the industry and support job growth in aerospace.
  3. Provide a collaborative forum for industry, labor and government.

# Aerospace Companies in Washington

All aspects of the supply chain . . .



# Global Aerospace Investment in Washington

*Foreign presence in Washington's Aerospace Cluster*



UMBRA GROUP



THALES



KUKA

TORAY



# Working with Washington

- Business Development Assistance
- Site Selection
- *Soft Landing* Package
- Referrals

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